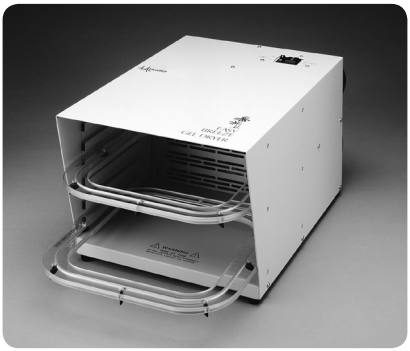
user manual

Hoefer SE1200 Easy Breeze

Air gel drying system



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Hoefer®

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Important Information – English

- If this equipment is used in a manner not specified by Hoefer, Inc. the protection provided by the equipment may be impaired.
- This instrument is designed for indoor laboratory use only.
- Only accessories and parts approved or supplied by Hoefer, Inc. may be used for operating, maintaining, and servicing this product.
- Warning! Because this instrument can develop sufficient voltage and current to produce a lethal shock, care must be exercised in its operation.
- This instrument is designed in accordance with the EN61010-1:2001 electrical safety standard. Nevertheless, it should be used only by properly trained operators. Read this entire manual before using the instrument and use only according to the instructions.
- The instrument must always be used with the earth lead of the power cord correctly grounded to earth at the mains outlet.
- Use only undamaged electrical wire and equipment specific for the voltages you will use. All equipment connected to high voltage should be in accordance with EN61010-1:2001.
- Keep the instrument as dry and clean as possible. Wipe regularly with a soft, damp cloth. Let the instrument dry completely before use.
- Do not operate the instrument in extreme humidity (above 80%). Avoid condensation by letting the unit equilibrate to ambient temperature when taking the instrument from a colder to a warmer environment.
- To permit sufficient cooling, ensure that the vents of the instrument are not covered.

Duležité Informace – Czech

- Pokud by toto zařízení je použito způsobem, který není podle Hoefer, ochrana poskytovaná na základě Inc. zařízení může být narušena.
- Tento nástroj je určen pro vnitřní použití v laboratoři pouze.
- Pouze příslušenství a části schválen, nebo poskytnutých Hoefer, Inc. mohou být použity pro provoz, údržbu, a údržbě tohoto výrobku.
- Pozor! Protože tento nástroj může vyvinout dostatečný napětí a proud, který má vyrábět a smrtiacej šok, péče musí být vykonávána v jeho provoz.
- Tento nástroj je určen v souladu s EN61010-1:2001 elektrické bezpečnostní normy. Přesto, že by měly být použity pouze řádně vyškolený operátorů. Číst celé toto ruční před použitím nástroje a použití pouze v souladu s pokyny.
- Přístroj musí být vždy používají se na výkonu zemi vést šňůra správně zemněny k zemi na síti výústce.
- Využití pouze nepoškozené elektrické dráty a vybavení pro napětí budete používat. Všechna zařízení spojené s vysokým napětím by měla být v souladu s EN61010-1:2001.
- Si ponechá nástroje jako suchý a čistý jako možné. Otřete pravidelně s a měkké, vlhkým hadříkem. Nechť je nástroj nenastavený úplně před použitím.
- Nejsou provozována na nástroj v extrémní vlhkost (nad 80%). Předešlo kondenzaci o pronájmu jednotky na okolní teplotu nechá při přijímání nástroj z chladnější do teplého prostředí.
- Pro umožnění dostatečné chlazení, zajistit, aby otvory nástroje jsou nevztahuje.

Vigtig Information – Danish

- Hvis dette udstyr bruges i en måde ikke specificeret ved Hoefer, Inc. den beskyttelse, som er blevet forsynet af udstyret kan måske svækkes.
- Dette instrument er designet for indendørs laboratoriumbrug bare.
- Bare tilbehør og del godkendede eller forsynede ved Hoefer, Inc. kan måske bruges for drive, funktionsfejl, og betjening dette produkt.
- Advare! Fordi dette instrument kan udvikle tilstrækkelig spænding og strøm at fremstille et dødbringende chok, skal pleje bruges i dets drift.
- Dette instrument er designet i overensstemmelse med EN61010-1:2001 elektrisk sikkerhedstandard. Alligevel, skulle det bruges bare af passende trænede operatører. Læs denne hel

håndbog før bruging instrumentet og brug bare i henhold til instruktionerne.

- Instrumentet skal altid bruges med jordblyet af netledningen rigtigt jordede til jord på hovedledningsudløbet.
- Bruger bare uskadt elektrisk tråd og udstyr, som være specifik for spændingerne du vil bruge. Alt udstyr forbundet til høj spænding skulle være i overensstemmelse med EN61010-1:2001.
- Beholder instrumentet så tør og ren som mulig. Tør regulært med et blødt, fugtigt stof. Lad instrumenttørken komplet før brug.
- Driver ikke instrumentet i yderst fugtighed (ovenfor 80%). Undgå kondensation ved lade enheden equilibrate til omgivende temperatur ved tageen instrumentets fra et koldere til et varmere miljø.
- At tillade tilstrækkelig afkøling, forsikrer, at lufthullerne af instrumentet er ikke dækket.

Belangrijke Informatie – Dutch

- Indien deze uitrusting in een manier wordt gebruikt die niet door Hoefer is gespecificeerd, Nv. de bescherming die door de uitrusting is verzorgd kan worden geschaad.
- Dit instrument is voor binnenlaboratoriumgebruik enkel ontworpen.
- Enkel onderdelen en delen keurden goed of leverden door Hoefer, Nv. kan voor het bedienen worden gebruikt, handhavend en onderhouden van dit product.
- Waarschuwend! Omdat dit instrument voldoende spanning en stroom kan ontwikkelen om een dodelijke schok te produceren, moet zorg in zijn operatie worden geoefend.
- Dit instrument is in overeenstemming met de EN61010-1:2001 elektrische veiligheidsstandaard ontworpen. Niettemin zou het enkel door goed getrainde bedieningslieden moeten worden gebruikt. Lees dit volledige handboek voor het gebruik het instrument en gebruik enkel volgens de instructies.
- Het instrument moet altijd met de aardeleiding van het stroomsnoer correct grondde naar aarde aan het hoofdafzetgebied worden gebruikt.
- Gebruik enkel onbeschadigde elektrische draad en uitrustings specifiek voor de spanningen u zult gebruiken. Alle uitrustingen sloten aan aan hoogspanning zou in overeenstemming met EN61010-1:2001 moeten zijn.
- Houd het instrument zo droge en schone zoals mogelijk Bij. Wis regelmatig met een zacht, temper doek. Verhuur het instrument droogt volledig voor het gebruik.
- Bedien niet het instrument in extreme vochtigheid (bovenstaande 80%). Vermijd condensatie door het verhuren van de eenheid in evenwicht brengt naar omgevingstemperatuur wanneer nemen het instrument van een kouder naar een lievere omgeving.
- Om toe te staan voldoende afkoelen, verzeker dat de luchtopeningen van het instrument niet bedekt zijn.

Tärkeää Tietoa – Finnish

- Jos tätä varusteita käytetään tavassa ei määritetty Hoeferille, Inc. suojelu ehkäisty varusteille saattaa olla avuton.
- Tämä väline suunnitellaan sisälaboratoriokäytölle vain.
- Vain lisävarusteet ja osat hyväksyivät tai toimitti Hoeferin oheen, Inc.:ää voi käyttää käyttämiselle, valvoalle, ja servicing tämä tuote.
- Varoittaminen! Koska tämä väline voi kehittää riittävä jännitteen ja virran tuottaa kuolettavan järkytyksen, huolta täytyy harjoittaa toiminnossaan.
- Tämä väline suunnitellaan EN61010-1:2001 sähköturvallisuusstandardin mukaisesti. Silti pitäisi käyttää vain ohi oikeasti koulutetut käyttäjät. Lue tämä kokonainen manuaalinen ennen välinettä ja käyttö vain ohjeiden mukaan.
- Välinettä täytyy käyttää aina valtanuoran maalyijystä perusti oikein maadoittaa sähköverkkoaukossa.
- Käyttää vain undamaged sähkömetallilankaa ja varusteita, täsmällinen jännitteille käyttää. Kaikki varusteet yhdistetty korkeaan jännitteeseen pitäisi olla EN61010-1:2001IN mukaisesti.
- Pitää välineen yhtä kuiva ja puhdas kuin mahdol-

linen. Pyyhi säännöllisesti pehmeällä, kostealla kankaalla. Anna väline kuivua täysin ennen käyttöä.

- Ei käytä välinettä extreme-ilmankosteudessa (80%)n yläpuolella. Vältä tiivistymistä antamalla yksikön equilibrate ympäröivään lämpötilaan kun ottaminen väline kylmempi lämpimämpään ympäristöön.
- Sallia riittävän jäähdyttäminen, varmistaa että välineen ilmareiät peitetään.

Information Importante – French

- Si cet équipement est utilisé dans une manière pas spécifié par Hoefer, Inc. la protection fourni par l'équipement pourrait être diminuée.
- Cet instrument est conçu pour l'usage de laboratoire intérieur seulement.
- Seulement les accessoires et les parties ont approuvé ou ont fourni par Hoefer, Inc. pourrait être utilisé pour fonctionner, maintenir, et entretenir ce produit.
- Avertissant! Parce que cet instrument peut développer la tension et le courant suffisants pour produire un choc mortel, le soin doit être exercé dans son
opération.
- Cet instrument est conformément conçu à l'EN61010-1:2001 norme de sécurité électrique. Néanmoins, il devrait être seulement utilisé par les opérateurs convenablement entraînés. Lire ce manuel entier avant utiliser l'instrument et l'usage seulement selon les instructions.
- L'instrument toujours doit être utilisé avec l'avance de terre du cordon d'alimentation correctement a fondé à la terre à la sortie principale.
- Utiliser le fil et l'équipement électriques seulement intacts spécifiques pour les tensions que vous utiliserez. Tout équipement connecté à haute tension devrait être conformément à EN61010-1:2001.
- Garder l'instrument aussi sec et propre comme possible. Essuyer régulièrement avec un doux, étouffer du tissu. Laisser l'instrument sèche complètement avant l'usage.
- Ne pas fonctionner l'instrument dans l'extrême humidité (au-dessus de 80%). Eviter la condensation en laissant l'equilibrate d'unité à la température ambiante en prenant l'instrument d'un plus froid à un environnement plus chaud.
- Permettre le refroidissement suffisant, garantir que les conduits de l'instrument ne sont pas couverts.

Wichtige Informationen – German

- Wenn diese Ausrüstung gewissermaßen nicht angegeben durch Hoefer, Inc verwendet wird, kann der durch die Ausrüstung zur Verfügung gestellte Schutz verschlechtert werden.
- Dieses Instrument wird für den Innenlaborgebrauch nur dafür entworfen.
- Nur Zusätze und Teile genehmigten oder lieferten durch Hoefer, Inc kann für das Funktionieren, das Aufrechterhalten, und die Wartung dieses Produktes verwendet werden.
- Die Warnung! Weil dieses Instrument genügend Stromspannung und Strom entwickeln kann, um einen tödlichen Stoß zu erzeugen, muss Sorge in seiner Operation ausgeübt werden.
- Dieses Instrument wird in Übereinstimmung mit dem EN61010-1:2001 elektrischen Sicherheitsstandard dafür entworfen. Dennoch sollte es nur von richtig erzogenen Maschinenbedienern verwendet werden. Lesen Sie dieses komplette Handbuch vor dem Verwenden des Instrumentes und verwenden Sie nur gemäß den Instruktionen.
- Das Instrument muss immer mit der Erdleitung der Macht-Schnur richtig niedergelegt zur Erde am Hauptausgang verwendet werden.
- Nur unbeschädigte elektrische Leitung und Ausrüstung spezifisch für die Stromspannungen verwenden, die Sie verwenden werden. Die ganze mit der Hochspannung verbundene Ausrüstung sollte in Übereinstimmung mit EN61010-1:2001 sein.
- Das Instrument ebenso trocken halten und reinigen wie möglich. Wischen Sie regelmäßig mit einem weichen, befeuchten Sie Stoff. Lassen Sie das Instrument trocken völlig vor dem Gebrauch.

- Das Instrument in der äußersten Feuchtigkeit (über 80 %) nicht bedienen. Vermeiden Sie Kondensation, die Einheit equilibrate zur Umgebungstemperatur laßend, wenn Sie das Instrument von einem kälteren bis eine wärmere Umgebung nehmen.
- Um das genügend Abkühlen zu erlauben, stellen Sie sicher, dass die Öffnungen des Instrumentes nicht bedeckt werden.

Informazioni Importanti – Italiano

- Se quest'apparecchiatura è usata in un modo specificato da Hoefer, Inc. la protezione fornito dall'apparecchiatura potrebbe essere indebolita.
- Questo strumento è disegnato per l'uso di laboratorio interno solo.
- Solo gli accessori e le parti hanno approvato o hanno fornito da Hoefer, Inc. potrebbe essere usato per operare, per mantenere, e per revisionare questo prodotto.
- Avvertendo! Perché questo strumento può sviluppare il voltaggio sufficiente e la corrente di produrre una scossa letale, la cura deve essere esercitata nella sua operazione. Questo strumento è disegnato conformemente all'EN61010-1:2001 la norma di sicurezza elettrica. Tuttavia, dovrebbe essere usato degli operatori solo correttamente addestrati. Leggere questo manuale intero prima di usare lo strumento e l'uso solo secondo le istruzioni.
- Lo strumento deve essere sempre usato col piombo di terra della spina di alimentazione correttamente hanno messo a terra alla terra alla presa di corrente principale.
- Usa il filo metallico e l'apparecchiatura solo intatti elettrici specifici per i voltaggi che lei userà. Tutta l'apparecchiatura collegata all'alto voltaggio dovrebbe essere conformemente a EN61010-1:2001.
- Tiene lo strumento come secco e pulito come possibile. Pulire regolarmente con un morbido, per spegnere il panno. Lasciare lo strumento asciuga completamente prima dell'uso.
- Non opera lo strumento nell'umidità estrema (al di sopra di 80%). Evitare la condensazione lasciando l'unità equilibra alla temperatura ambiente quando portare lo strumento da un più freddo a un ambiente più caldo.
- Di permettere raffreddare sufficiente, assicura che gli sbocchi dello strumento non sono coperti.

Viktig Informasjon – Norwegian

- Hvis dette utstyret blir brukt i en måte ikke spesifisert ved Hoefer, Inc. beskyttelsen som ha blitt git av utstyret kan bli svekket.
- Dette instrumentet er utformet for innendørs laboratoriumbruk bare.
- Bare tilbehør og deler godkjente eller forsynte ved Hoefer, Inc. kan bli brukt for drive, vedlikeholde, og betjene dette produktet.
- Varsler ! Fordi dette instrumentet kan utvikle tilstrekkelig spenning og strøm til å produsere et dødelig sjokk, må bli øvd bekymring i dets drift.
- Dette instrumentet er utformet i samsvar med EN61010-1:2001 elektrisk sikkerhetsstandard. Likevel burde bli brukt det bare av skikkelig utdannede operatører. Les denne hele håndboken før bruking instrumentet og bruken bare gi til instruksjonene.
- Instrumentet må alltid bli brukt med jorden blyet av kraftkabelen som riktig ha blitt jordet til jord på hovedledningen utløp.
- Bruker bare uskadd elektrisk ledningsfremføring og utstyr som er spesifikk for spenningene du vil bruke. All utstyr koplet til høyspenning burde være i samsvar med EN61010-1:2001.
- Beholder instrumentet som tørker og rengjør som mulig. Visk regulært med et mykt, fuktig stoff. La instrumentet tørker komplett før bruk.
- Driver instrumentet i ekstrem fuktighet ikke (ovenfor 80%). Unngå kondensasjon ved å la enheten equilibrate til omgivelsestemperatur ved taen instrumentets fra et kaldere til et varmere miljø.
- Til å tillate tilstrekkelig kjølig, sikrer at ventilasjonsåpningene av instrumentet er ikke dekket.

Wazne Informacje – Polish

- Jeżeli ten sprzęt jest wykorzystywany w sposób nie określone przez Hoefer, Inc. do ochrony przewidzianej przez urządzenie może zostać obniżony.
- Instrument ten jest przeznaczony do użytku w laboratoriach kryty tylko.
- Tylko akcesoriów i części zatwierdzone lub dostarczone przez Hoefer, Inc. mogą być wykorzystane do eksploatacji, utrzymania i obsługi tego produktu.
- Uwaga! Ponieważ ten akt prawny może być rozwinięcie odpowiednich napięcie i bieżących do wyprodukowania śmiertelnego szoku, opiekę musi być wykonywane w działaniu.
- Ten instrument został zaprojektowany zgodnie z tym EN61010-1: 2001 Bezpieczeństwo elektryczne standard. Niemniej jednak, należy stosować jedynie przez odpowiednio przeszkoleni operatorów. Znajdą państwo to cały podręcznika przed zastosowaniem instrumentu i stosować jedynie zgodnie z instrukcjami.
- Instrument musi zawsze być wykorzystane z ziemi doprowadzić do zasilania detonującego właściwie uzasadnione na ziemię w sieci wodociągowej rynku zbytu.
- Wykorzystanie tylko nieuszkodzona elektrycznych drutów i urządzenia specjalne do napięć zapłacą wykorzystania. Wszystkie urządzenia podłączone do wysokiego napięcia powinny być zgodne z EN61010-1: 2001.
- Kontrolować instrumentu jako suche i czyste jak to możliwe. Wytrzeć regularnie przy pomocy miękkiego wilgotnej szmatki. Niech się instrumentem całkowicie wysuszyć przed użyciem.
- Nie prowadzą do instrumentu w skrajnych wilgotności (powyżej 80%). Zapobiec kondensacji najmu przez jednostkę równoważyć do temperatury pokojowej przy podejmowaniu instrumentu z chłodniejsze w cieplejszych środowiska.
- Aby umożliwić wystarczające chłodzenia, zapewniają, że rozcięcia of the instrument nie objęte ubezpieczeniem.

Informações Importantes – Portuguese

- Se este equipamento é usado numa maneira não especificada por Hoefer, Inc. que a protecção fornecida pelo equipamento pode ser comprometida.
- Este instrumento é projectado para uso de interior de laboratório só. Só acessórios e partes aprovaram ou forneceu por Hoefer, Inc. pode ser usada para operar, manter, e servicing este produto.
- Advertindo! Porque este instrumento pode desenvolver voltagem suficiente e corrente produzir um choque letal, cuidado deve ser exercitado em sua operação.
- Este instrumento é projectado de acordo com o EN61010-1:2001 condição de segurança eléctrica. Não obstante, deve ser usado só por operadores adequadamente treinados. Leia este manual inteiro antes de usar o instrumento e use só de acordo com as instrucções.
- O instrumento sempre deve ser usado com o chumbo de terra do cordão de poder corretamente baseou a terra nos canos saída principais.
- Usa fio eléctrico só intacto e equipamento específico para as voltagens que você usará. Todo equipamento conectado a voltagem alta deve ser de acordo com EN61010-1:2001.
- Mantem o instrumento tão seco e limpo como possível. Limpe regularmente com um pano húmido macio. Deixe o instrumento secar completamente antes de uso.
- Não opera o instrumento em humidade extrema (acima de 80%). Evite condensação deixando o equilibrate de unidade a temperatura ambiental quando tomar o instrumento de um mais frio a um ambiente mais quente.
- Permitir esfriar suficiente, assegura que as aberturas do instrumento não são cobertas.

Información Importante – Spanish

- Si este equipo es utilizado en una manera no especificado por Hoefer, S.a. la protección proporcionado por el equipo puede ser dañada.
- Este instrumento es diseñado para el uso interior del laboratorio sólo. Sólo accesorios y partes aprobaron o suministraron por Hoefer, S.a. puede ser utilizado para operar, para mantener, y para atender a este producto.
- Advirtiendo! Porque este instrumento puede desarrollar voltaje y corriente suficientes para producir un golpe mortal, el cuidado debe ser ejercitado en su operación.
- Este instrumento es diseñado de acuerdo con el EN61010-1:2001 estándar eléctrico de seguridad. No obstante, debe ser utilizado sólo por operarios adecuadamente capacitados. Lea este manual entero antes de utilizar el instrumento y el uso sólo según las instrucciones.
- El instrumento siempre debe ser utilizado con el plomo de la tierra del cable de alimentación molió correctamente a la tierra en la salida de red.
- Utiliza alambre y equipo eléctricos sólo ilesos específicos para los voltajes que usted utilizará. Todo equipo conectado al voltaje alto debe ser de acuerdo con EN61010-1:2001.
- Mantiene el instrumento tan seco y limpio como posible. Enjugue regularmente con un suave, el trapo húmedo. Permita que el instrumento seque completamente antes de uso.
- No opera el instrumento en la humedad extrema (encima de 80%). Evite condensación permitiendo la unidad equilibra a la temperatura ambiente al tomar el instrumento de un más frío a un ambiente más tibio.
- Permitir refrigeración suficiente, asegure que las aberturas del

Viktig Information – Swedish

- om denna utrustning används i ett sätt som inte har specificeras av Hoefer, Inc. skyddet tillhandahöll vid utrustningen kan skadas.
- Detta instrument formges för inomhuslaboratorium användning bara.
- Bara medhjälpare och delar godkände eller levererade vid Hoefer, Inc. kan användas för fungera, underhålla, och servicing denna produkt.
- varna! Därför att detta instrument kan utveckla tillräcklig spänning och ström att producera en dödlig stöt, måste övas omsorg i dess funktion.
- Detta instrument formges i överensstämmelse med EN61010-1:2001 elektriska säkerheten standarden. Icke desto mindre, bör det användas bara av riktigt utbildade operatörer. Läs denna hela handbok före använda instrumentet och använd bara enligt undervisningarna.
- Instrumentet måste alltid användas med jorden blyet av kraften repet riktigt grounded till jorden på det huvudutloppet.
- Använder bara undamaged elektrisk tråd och utrustning specifik för spänningarna du ska använda. All utrustning kopplats som till hög spänning skulle vara i överensstämmelse med EN61010-1:2001.
- Håller instrumentet då torkar och rengör som möjlig. Torka regelbundet med en mjuk, fuktig trasa. Låt instrumentet torka fullständigt före användningen.
- Fungerar inte instrumentet i extrem fuktighet (över 80%). Undvik kondensering vid låta enheten equilibrate till omgivande temperatur när ta instrumentet från en kallare till en varmare miljö.
- Att tillåta tillräcklig kyla, ser till att hålen av instrumentet inte täcks.

Waste Electrical and Electronic Equipment (WEEE)

English

This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment.

French

Ce symbole indique que les déchets relatifs à l'équipement électrique et électronique ne doivent pas être jetés comme les ordures ménagères non-triées et doivent être collectés séparément. Contactez un représentant agréé du fabricant pour obtenir des informations sur la mise au rebut de votre équipement.

German

Dieses Symbol kennzeichnet elektrische und elektronische Geräte, die nicht mit dem gewöhnlichen, unsortierten Hausmüll entsorgt werden dürfen, sondern separat behandelt werden müssen. Bitte nehmen Sie Kontakt mit einem autorisierten Beauftragten des Herstellers auf, um Informationen hinsichtlich der Entsorgung Ihres Gerätes zu erhalten.

Italian

Questo simbolo indica che i rifiuti derivanti da apparecchiature elettriche ed elettroniche non devono essere smaltiti come rifiuti municipali indifferenziati e devono invece essere raccolti separatamente. Per informazioni relative alle modalità di smantellamento delle apparecchiature fuori uso, contattare un rappresentante autorizzato del fabbricante.

Spanish

Este símbolo indica que el equipo eléctrico y electrónico no debe tirarse con los desechos domésticos y debe tratarse por separado. Contacte con el representante local del fabricante para obtener más información sobre la forma de desechar el equipo.

Swedish

Denna symbol anger att elektriska och elektroniska utrustningar inte får avyttras som osorterat hushållsavfall och måste samlas in separat. Var god kontakta en auktoriserad tillverkarrepresentant för information angående avyttring av utrustningen.

1. Air Dryer Function and Description

The Hoefer® SE1200 Easy Breeze Air Gel Dryer dries polyacrylamide gels by circulating air around gels that are supported on at least one side by semi-permeable cellophane. The dryer circulates air that is either at ambient temperature, or heated to ~43 °C (low setting) or ~54 °C (high setting). Two 20 cm × 20 cm drying frames and a loading platform (20 cm × 20 cm) are included. The dryer can hold up to six frames, and when fully loaded, the dryer can accommodate up to six 20 × 20 cm or twenty-four 8 × 10 cm gels. With the 21 cm × 26 cm accessory frames, the dryer can accommodate up to six 21 cm × 26 cm or thirty-six 8 cm × 10 cm gels.

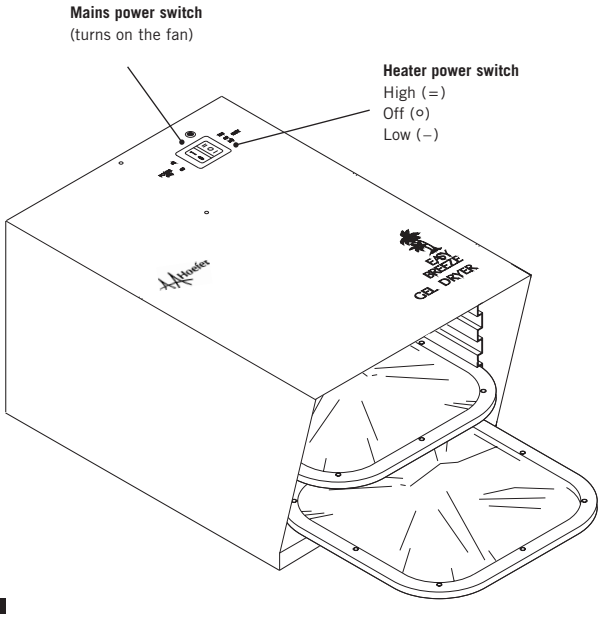


Fig 1. Main components of the SE1200 Easy Breeze.

Slide assembled frames into the racks, starting at the top slot. Always place the wettest assemblies in the bottom slots.

Unpacking

Unwrap all packages carefully and compare contents with the packing list, making sure all items arrived. If any part is missing, contact your local sales office. Inspect all components for damage that may have occurred while the unit was in transit. If any part appears damaged, contact the carrier immediately. Be sure to keep all packing material for damage claims or for repacking should it become necessary to return the unit.

This declaration of conformity is only valid for the instrument when it is:

- used in laboratory locations.
- used as delivered from Hoefer, Inc. except for alterations described in the user manual.
- connected to other CE labeled instruments or products recommended or approved by Hoefer, Inc.

Specifications

115 V~ model

Max. wattage	1325 W
Max. voltage	105–125 V~
Frequency	57–63 Hz

230 V~ model

Max. wattage	1325 W
Max. voltage	210–250 V~
Frequency	47–63 Hz

Environmental operating conditions	Indoor use 4–40 °C Humidity up to 80% Altitude up to 2000 m
Installation category	II
Pollution degree	2
Dimensions (w × d × h)	32 × 51 × 27 cm (12.5 × 20 × 10.5 in.)
Product certifications	EN61010-1, UL3101-1, CSA C22.2 1010.1, CE

2. Operating Instructions

Setting up the Dryer

❶

Place the dryer in a well ventilated area such as under a fume hood.

❷

Plug the mains power cord into a properly grounded receptacle. The mains power switch operates the fan, which circulates air that is either at ambient temperature or heated if the heater is switched on. The three heat settings are:

= high setting ~54 °C

° ambient temperature

– low setting ~43 °C

The indicator lamp, located next to the heater switch, lights up when the low or high setting is chosen.

Preparing the Gel for Drying

Listed below are recommended procedures to ensure optimum drying results for gels of different thicknesses and acrylamide concentrations. Thin gels (0.75 mm or less) are recommended for best results.

This drying method is not recommended for:

- Agarose gels, which are generally too thick.
- Polyacrylamide gels attached to GelBond® film.

Thin Gels

(Gel thickness ≤0.75 mm—or—gel thickness >0.75 mm and acrylamide ≤10% T)

❶

Fix and stain the gels according to your preferred protocol.

❷

Final soak solution.

Coomassie Blue. The final destaining solution should consist of 7% acetic acid, 5% methanol, and 0.5–2% glycerol. (Glycerol maintains the flexibility of the gel, making it less likely to crack.) Equilibrate the gel in this solution for a minimum of 2 hours, but preferably overnight. After destaining, rinse the gel with distilled water for 1–2 minutes to remove excess acetic acid.

Silver stain. Add 0.5–2% glycerol to the final water rinse.

Fluorography. Follow the manufacturer's instructions. For fluorography agents EN^{3}HANCE™ and sodium salicylate, add 0.5–2% glycerol to the final cold water precipitation step.

❸

Load the gel onto the drying frame as described on page 9.

Thick Gels

(Gel thickness >0.75 mm and acrylamide >10% T)

❶

Fix, stain and destain the gel according to your preferred protocol. Use a final destaining solution of 7% acetic acid and 5% methanol.

❷

Final soak solution.

Coomassie Blue. After the final destain, soak the gel in a solution of 35% ethanol and 0.5–2% glycerol for 1–2 hours. (Ethanol dehydrates the gel, which minimizes cracking during drying. Do not place the gel in the ethanol solution longer than 2 hours, as ethanol will begin destaining the gel.)

Silver stain. Add 0.5–2% glycerol to the final water rinse.

Fluorography. Follow the manufacturer's instructions. For fluorography agents EN^{3}HANCE and sodium salicylate, add 0.5–2% glycerol to the final cold water precipitation step.

❸

Load the gel onto the drying frame as described on following page.

Note: Unless gel cracking is a recurring problem, prevent gels from becoming tacky by using 2% glycerol or less in the gel soaking solution.

Note: If you soak gels in a solution of ethanol and glycerol you can dry the gels after a 2-hour soak.

Assembling the Gel Drying Stack

Gel frames that are delivered in the same package as the Easy Breeze are preassembled. When you order additional SE1210 Series gel frames, you must install the eight knobs that lock the inner frame in place before they can be used.

Working with gel frames that are not preassembled

Screw the eight black knobs into the outer gel frame until they fit just short of snug. (See Fig 2.) Continue with step 1 of the assembly instructions.

Working with preassembled gel frames

Turn each black knob a one-quarter turn to release the inner frame. (See Fig 3.) Gently pop the inner frame out of the outer frame and continue with step 1 of the assembly instructions.

❶

Place the inner frame on the loading platform with the side labeled UP facing up.

❷

Immerse a sheet of porous cellophane in distilled water and soak for several minutes. Place the fully hydrated sheet over the inner frame on the loading platform. Pour 5–10 ml of distilled water onto the sheet.

❸

Place the gel(s) on the cellophane. Remove all bubbles by carefully pushing them toward the edge of the gel with your gloved finger.

4

Pour 5–10 ml of distilled water around the edges of and onto the gel. Cover the gel with a fully hydrated sheet of either cellophane or mylar:

Cellophane. Use for fluorography, thick gels, or to preserve a gel. Fully hydrate a sheet of porous cellophane in distilled water and place it over the gel. (Cellophane does not quench the signal of fluor-treated gels.)

Important! Remove all bubbles trapped under the top sheet by displacing them with distilled water and pushing them to the edge of the gel with your gloved finger. Work from the center of a single gel or, if several gels are on the platform, work from the center of the frame toward the edge.

Mylar. Use for contact autoradiography for gels ≤1 mm. Fully hydrate a sheet of Mylar in distilled water and place it over the gel. Once the gel is dried, the Mylar peels off. Place the uncovered side against the X-ray film.

5

Position the outer frame—with the Hoefer label facing up and the locking knobs facing down—over the cellophane sheets and around the inner frame. Press down to engage the two frames. Applying pressure to opposite corners of the frame usually causes the frames to slip easily into place.

6

Turn the frame assembly over. Turn each knob 1/4 turn so that the long edge is perpendicular to both frames. (See Fig 3.) This "locks" the two frames together, preventing slippage as the gel shrinks during drying.

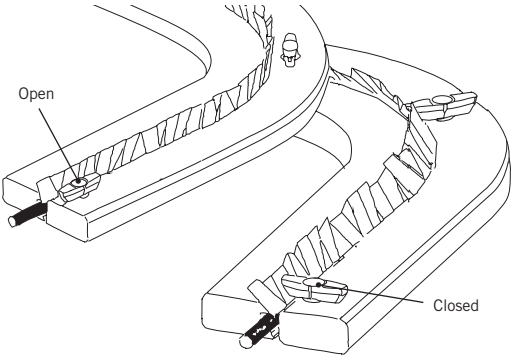
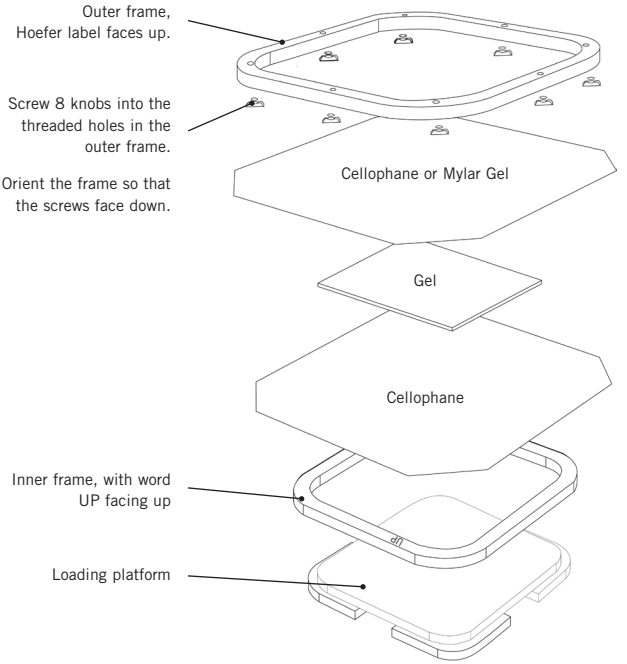


Fig 3. Lock the frame flip the assembly over and turn the knobs perpendicular to the frames.

Fig 2. Frame parts and gel drying stack assembly (frame size 20 cm × 20 cm or 21 cm × 26 cm).


Outer frame,
Hoefer label faces up.
Screw 8 knobs into the threaded holes in the outer frame.
Orient the frame so that the screws face down.
Cellophane or Mylar Gel
Gel
Cellophane
Inner frame, with word UP facing up
Loading platform

Drying the Gels

Note: Gels >0.75 mm thick or gels with acrylamide concentration >10% T must be dried slowly; use the fan with low or no heat only.

Note: To avoid cracking gels that are already dry, do not drip liquid on them. Load wet gels below drier ones.

❶

Slide each frame assembly into the Easy Breeze dryer, driest assembly on top, knobs facing up. Turn on the power switch (I) and then set the heater temperature switch to the high (=), low (–), or fan only (○) setting.

❷

To ensure uniform drying, rotate each frame 180° (back to front) about every half hour. Gels generally dry in 1 to 3 hours depending on gel concentration, thickness, the temperature setting, and the amount of glycerol added.

❸

Once all gels are dry, turn off the fan and heater switches. Remove the gels from the frames. Rinse frames thoroughly with water and then distilled water after each use.

Optional:

Cellophane. Trim excess.

Mylar. For contact autoradiography, peel Mylar off before exposing the gel to X-ray film.

3. Care and Maintenance

Note: Never autoclave or heat any component above 55 °C.

Cleaning

After each use, wipe the dryer with a damp cloth. Clean each frame with mild soap and water, rinse thoroughly with water and distilled water, and allow to air dry. Never use abrasive cleansers on any part. Do not expose the frame to solutions or vapors of aromatic or halogenated hydrocarbons, ketones, esters, alcohols (over 30%), or concentrated acids (over 25%).

Changing the Gasket

If the gasket on the inner frame becomes inflexible or no longer holds the gel stack tautly, remove it and install a new gasket, stretching it *slightly* around three sides and then rolling it into place on the fourth.

Changing Fuses

Note: Fuses protect equipment by disconnecting loads too large for the instrument's circuit design. Replace fuses only with identical fuse values.

115 V~ model:
one F 12A 250V 3AG

230 V~ model:
two T 6.3A 250V, 5 × 20 mm

❶

Caution! Set the power switch to off and unplug the power cord before replacing the fuse.

❷

Insert a small flat-blade screwdriver into the slot on the fuse module, depress slightly, and turn it 1/4-turn counterclockwise. The spring-loaded module cap will loosen and you can then pull the cap/fuse holder out.

❸

Pull the fuse out of its holder and inspect. If the fuse element is burned or broken, replace the fuse with an identical type. If the fuse appears to be intact, check it with a multi-meter. (A reading of 1Ω or less indicates the fuse is still usable.)

❹

Insert the fuse into the holder and then insert this assembly back into the unit. Seat the module by inserting the screwdriver into the slot, pressing gently, and turning the cap 1/4-turn clockwise.

❺

230 V~ model: Repeat steps 2 to 4 for the second fuse.

4. Troubleshooting

problem	solution
Gel or cellophane cracks	
All gels	Handle the gel and cellophane with care. Fully hydrate the cellophane with distilled water just before use and avoid stretching it during assembly.
	If the cellophane is drying too quickly, instead of hydrating it in distilled water, soak it in the same glycerol solution used for the gel.
	Always remove all air bubbles before drying.
	Lower the heat setting.
	Load frame assemblies into the dryer from the top down. Avoid dripping onto a partially dried gel.
Gradient gels or gels ≥0.75 mm thick with acrylamide ≥10% T	Dehydrate the gel in 35% ethanol and 2% glycerol before drying. If gels still crack, increase the percentage of glycerol up to 5%. *Note:* With a higher percentage of glycerol, a longer drying period is required. The gels may also be flexible and feel tacky when dry.
Fluor-treated gel	Use cellophane instead of mylar.
	Use a thinner gel (≤0.75 mm).

problem	solution
Gel dries too slowly or not at all	
Gel dries unevenly	Rotate each frame 180° (front-to-back) every half hour.
Check the gel or stack	Reduce the amount of glycerol to 0.5 to 2%.
	Check that you are not using two sheets of Mylar. At least one sheet must be cellophane.
Check the heater	Make sure the indicator lamp lights at the low hear or high hear settings. If it doesn't light or the heater does not heat, the safety switch may be tripped. Check that the front and back of the dryer are unobstructed and wait a few minutes for the dryer to cool, then resume heating.
Gel turns cloudy or white	
Gels ≥0.75 mm thick with acrylamide ≥10% T	Reduce the percentage of ethanol to 30%.
	Do not soak the gel for more than 2 hours in the ethanol/glycerol dehydration solution.
	After Coomasie Blue staining, be sure to use final destain of 7% acetic acid and 5% methanol.
Dryer does not function	Check that the power switch is on.
	Check that the power receptacle is properly grounded and in working condition.
	Check the fuses and replace, if necessary
	If the dryer overheats, make sure air can flow freely by checking that both the front and back are not obstructed. If the dryer overheats more than once in the same day, call Hoefer, Inc.

5. Visualization Notes

Direct Autoradiography

Prepare the gel in the usual manner and expose to film as directed with the instructions accompanying the film. Exposure times, especially for medium energy beta-emitters such as ^{14}C and ^{35}S can be quite long. For maximum sensitivity of these types of labels, use fluorography.

Fluorography

Fluorography intensifies a weak beta emission signal by impregnating the gel with a suitable fluor that converts beta emission from ^{35}S, ^{14}C, and ^{3}H into light. Drying the gel in cellophane does not quench this signal, but for ^{3}H, a very weak beta-emitter, up to 20% of the signal may be lost.

If using EN^{3}HANCE or sodium salicylate as fluorography agents, include 0.5% to 2% glycerol in the cold water treatment prior to drying. Dehydration steps are not required for thinner, lower percentage gels, which are far less prone to cracking. If exposed to the maximum drying temperature (~54 °C), these gels may form longer fluor crystals, resulting in higher background on X-ray exposures.

Note: Certain fluorographic agent manufacturers specify temperatures higher than those reached in the Hoefer Easy Breeze (e.g. Autofluor™ [National Diagnostics] and Fluoro-Hance™ [Research Products International], which require up to 80 °C to produce an optimum signal). This dryer is not recommended for such agents.

6. Bibliography

Juang, R.H., Chang, Y.D., Sung, H.Y., and Su, J.C., Oven-drying method for polyacrylamide gel slab packed in a cellophane sandwich. *Anal. Biochem.* **141**, 348–350 (1984).

Laskey, R.A., The use of intensifying screens or organic scintillators for visualizing radioactive molecules resolved by gel electrophoresis. (*In Methods in Enzymology*, **65**, L. Grossman and K. Moldave, eds.) Academic Press, N.Y. 365–371 (1980).

Perng, G.S., Rulli, R.D., Wilson, D.L. and Perry, G.W., A comparison of fluorographic methods of detection of 35S labeled proteins in polyacrylamide gels. *Anal. Biochem.* **173**, 387–392 (1988).

7. Ordering Information

product	quantity	code no.
Easy Breeze Air Gel Dryer Includes two 20 cm × 20 cm gel frames, one 20 cm × 20 cm loading platform, and 50 cellophane sheets.		
115 V~	1	SE1200-115V
230 V~	1	SE1200-230V

Replacement Parts: 20 cm × 20 cm frames and platform

Cellophane sheets, 33 cm × 33 cm	50	SE1202
Mylar sheets, 33 cm × 33 cm	25	SE1204
Gel drying frame, 20 cm × 20 cm. Includes inner and outer frames, 8 black knobs and one O-ring sealing gasket. (Order loading platform separately.)	1	SE1210
O-ring sealing gasket, 20 cm × 20 cm frame	1	SE1212
Knobs, black	10	SE1213
Gel loading platform, 20 cm × 20 cm	1	SE1214
Outer gel drying frame and 8 knobs, 20 cm × 20 cm	1	SE1215
Inner gel drying frame, 20 cm × 20 cm, and one O-ring sealing gasket	1	SE1216

Replacement Parts: 21 cm × 26 cm frames and platform

Cellophane sheets, 33 cm × 38 cm	50	SE1202-L
Mylar sheets, 33 cm × 38 cm	25	SE1204-L
Gel drying frame, 21 cm × 26 cm. Includes inner and outer frames, 8 black knobs and one O-ring sealing gasket. (Order loading platform separately)	1	SE1210-L
O-ring sealing gasket, 21 cm × 26 cm frame	1	SE1212-L
Knobs, black	10	SE1213
Gel loading platform, 21 cm × 26 cm	1	SE1214-L
Outer gel drying frame and 8 knobs, 21 cm × 26 cm	1	SE1215-L
Inner gel drying frame, 21 cm × 26 cm, and one O-ring sealing gasket	1	SE1216-L

Fuses

115 V~ model, F 12A 250 V, 3 AC	5	PSF12A-FB-3AG
230 V~ model, T 6.3A, 250 V, 5 × 20 mm	5	PSF6.3A-SB-5X20

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